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# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT

No. 128



FOREIGN BROADCAST INFORMATION SERVICE

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8 August 1980

# WORLDWIDE REPORT

## TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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## VIETNAM READIES SOVIET-BUILT SATELLITE STATION

### Begins Operation

BK221351 Hanoi Domestic Service in Vietnamese 1040 GMT 22 Jun 80

[From review of QUAN DOI NHAN DAN for 22 June]

[Summary] Today's QUAN DOI NHAN DAN also features an article by (Nguyen Dean) on the Hoa Sen ground satellite communications station as follows: "Our Hoa Sen ground satellite communications station is a valuable gift presented by the party, government and people of the Soviet Union to the Vietnamese people in order to help the latter better develop their economy, science, technology and culture."

The station is equipped with a 6.5-ton parabolic mirror antenna measuring 12 meters in diameter that can swing around on its axis in a 270-degree arc. This antenna, together with other equipment housed in the main building, allow the station to operate at two high-frequency channels for transmitting and receiving television, telephone and other communications signals on a round-the-clock basis.

"In only a few days, when the construction of the Hoa Sen ground satellite communications station is completed and it is put into operation, a link between Moscow and Hanoi will be established in the following mode:

"Signals from the television broadcasting center and the international telephone switchboard in Moscow will go via their carrier path--consisting of either cable lines or radio relay networks--to a Soviet ground-based communications satellite station. From there, these signals will be sent by a high-powered transmitter with the aid of a high-beaming antenna system to (Pachona 4), a satellite located at 36 degrees east longitude and 0-degrees latitude over the Indian Ocean. Electronic equipment installed in this satellite will receive the signals, convert them into appropriate data for transmission and beam them to Vietnam. With its ultrasensitive equipment, our Hoa Sen ground satellite communications station will receive these signals and amplify them to the normal level to enable reception by home television sets and telephone receivers. The station will then relay the signals to the central television station or the Hanoi general telephone switchboard by deflecting them through its radio antenna system."

The signals to be sent from Hanoi to Moscow will go through the same process but in reverse sequence.

## First Signals Received

OW271631 Hanoi VNA in English 1539 GMT 27 Jun 80

[Text] Hanoi VNA June 27--At 19:09 hours on June 21 the satellite ground station "Hoa Sen (Lotus)" built with Soviet assistance began monitoring signals from the earth Sputnik "Stations-5". At 09:08 on June 22 it received colour pictures from the earth Sputnik "Vostok-85" and on the evening of June 23, a live television broadcast of a football match in Moscow.

Vietnamese workers, technicians and Soviet specialists are finishing the installment and adjustment of equipment in order to adapt the station to the Intersputnik system. Finishing touches are also being put to the work at the central television station and the postal centre in Hanoi to affect at an early date the two-way television and radio satellite communications between Hanoi and Moscow, first of all, to get ready for the reception of television broadcasts on the Moscow Olympics games.

CSO: 3500



PANAMANIAN PAPER HAILS SUSPENSION OF ITT AGREEMENTS

PA160239 Panama City LA REPUBLICA in Spanish 15 Jun 80 p 4-A

[Editorial: "Our Communications"]

[Excerpt] National control of our communications has been a part of the struggle of generations for our sovereignty.

The confrontation has been lengthy, silent and vigorous. The transnational companies refuse to relinquish the control that they obtained by sacrificing a country that was young, defenseless and unprepared to assume these responsibilities. But this country has grown and matured and is technologically capable of taking the reins of its destiny. It has individuals who are capable of successfully completing all the duties assigned to them by the nation.

The National Telecommunications Institute (INTEL), as the representative of the republic, has made decisions that have been unacceptable to the transnationals, which have created situations that are unacceptable to Panama, its government and its people. Moreover, the actions of the communications transnationals have caused problems for the international financial center that is operating in Panama.

In view of all the foregoing, President Aristides Royo has sent a note to the chairman and chief of operations of the ITT Corporation in New York informing him of the Panamanian Government's decision to end those operations at the expiration of the respective contracts. Since INTEL is the only organization responsible for national and international telecommunications services in the Republic of Panama, we consider this to be a basic step in the process of strengthening Panama's sovereignty over its territory, airspace, and its communications by land, sea and air--since the government, in the exercise of its faculties, "has decided not to grant new concessions." This is because all national and international telecommunications to be offered in and from the Republic of Panama will have to be coordinated with INTEL, through which the corresponding arrangements will have to be made." [quotation marks as published] This is a firm step toward total sovereignty.

CSO: 5500

BRIEFS

HUNGARIAN-AFGHAN TV AGREEMENT--Budapest, June 21 (MTI)--A Hungarian-Afghan television cooperation agreement was signed in Budapest on Saturday. The accord, which was initialed by Richard Nagy, president of the Hungarian television, and Abdullah Shadam, president of the Afghan television, stipulates cooperation between the Hungarian and Afghan networks in the exchange of television programmes, advanced training of television workers and in other spheres of telecasting activities. [Text] [LD211946 Budapest MTI in English 1719 GMT 21 Jun 80]

FRENCH ASSISTANCE TO KINSHASA--The state commissioner for post and telecommunications, Citizen Tokwaulu Bolamba, has commissioned the satellite telecommunications ministration in Kamina, in the Shaba region. This earth station will serve the subregion of Upper Lomani. The station which includes, a 13-meter parabolic antenna directed towards Intelsat IV above the Atlantic Ocean and equipment for transmitting and receiving telephone, telex and television signals, was built with French technical assistance by Thomson Company technicians. [Kinshasa AZAP in French 1935 GMT 25 Jun 80 AB]

FRENCH COMMUNICATIONS FOR NIGER--Thomson-CSF, in conjunction with Telspace, is going to build a satellite telecommunications network in Niger. The contract for the project, estimated to cost 276 million francs, has just been signed in Paris by Lt Col Sory Mamadou Diallo, Niger's minister of telecommunications. Thomson-CSF will build a 275-kilometer radio relay linking Agadez to Arlit and a telephone exchange in Arlit. It will also supply four television transmitters and a relay transmitter for the Niger Radio and Television Broadcasting Corporation. [Paris AFP in French 1140 GMT 26 Jun 80 AB]

CSO: 5500

# TELEVISION LINKUP WITH MOSCOW TV CHANNELS

Kabul NEW TIMES in English 15 Jul 80 p 4

[Text] Kabul, July 15, (Bakhtar).--By commissioning the Mars Station under the Soviet Union grant-in-aid program a TV communication bridge has been established between DRA and the USSR TV stations for receiving Moscow TV programmes.

The plant has two telephone and one telegraphic channel, through which Afghanistan TV can make use of various Moscow TV and international programmes through Moscow.

The plant receives TV waves from a stationary No 5 satellite setup over Indian Ocean with a height of 36,000 kms from the earth. The movement of the satellite is synchronised with the earth movement and has the same velocity.

Quoting the above in reply to a question put by the Bakhtar reporter, the president of radio-TV technical department added that since Soviet TV system is SCAM and DRA TV system is PAL the Mars plant changes the SCAM system into PAL system by Transkodar.

After determining the form and norm of the TV waves. [as published]

The transkodar has been fixed by radio-TV engineers and is ready for operation. By utilizing the plant Moscow TV broadcasts are changed into PAL system and this received by TV sets in Afghanistan. Moreover, the Mars station provides for direct recording inside TV studios.

He added that by having two telephone channels the Mars station provides for contacting Afghan reporters in Moscow and thus the reporters can directly announce Moscow 1980 Olympic sports competitions to Kabul.

The Mars station will operate for two years to receive Moscow TV and international programmes and after two years the permanent station calling Lotus will be commissioned according to the set plan so that permanent TV link between Kabul and Moscow should be established.

## AUSTRALIA

### EXPERTS SAY COMMUNICATIONS COULD BE CUT BY ATOM BLAST

Melbourne THE AGE in English 2 Jul 80 p 1

[Report by Peter Roberts]

[Text] One carefully placed nuclear blast way out in space could severely disrupt Australia's telecommunications and electricity supply, according to research by Telecom.

Three Telecom scientists, who assessed the risks of damage from a hypothetical blast 265 kilometres above south-east Australia, have called for action to protect communications in wartime.

While no one might be killed, the scientists warn of equipment failures in all eastern capitals — failures that could take several months to repair.

Scientists Dr Reg Coutts, Dr Stan Davies and Dr John Campbell presented their assessment at a recent engineering conference in Adelaide.

They said the probable consequences were so serious that action was warranted even though such an explosion was most unlikely.

A high altitude burst might come before a conventional military invasion. Australia is particularly vulnerable because its defence forces rely heavily on Telecom installations.

The burst would be felt at ground level as a powerful wave of radiation, known as an electromagnetic pulse or EMP. The pulse would set up electric currents in conductors such as power lines and telephone cables.

Dr Coutts, of the Telecom Research Laboratories, said yesterday: "EMP does have similarities to lightning . . . It is the granddaddy of them all. But a lot of the lightning protection devices would not be effective."

The three scientists predicted that installations such as microwave repeater stations and electrical sub-station transformers were likely to fail under the load of an EMP.

They said spare parts might not be available if there were large-scale failures in common electrical components such as transformers.

"Manufacturers would inevitably be overwhelmed by orders. Thus the complete restoration of services could take several months," they said.

Dr Coutts said Australia's telecommunications network was not designed with EMP in mind.

Safeguarding the system in some cases was simple, involving proper earthing or the addition of extra capacitors to act as a bypass current.

Dr Coutts said Telecom would be taking the possibility of EMP into account with new installations where protection was likely to be cheap.

"To go into a place after it is built and find vulnerable points can be difficult," he said. "It takes time, and there is a lot of plant involved here."

## AUSTRALIA

### SOLAR ENERGY SOLVES OUTBACK COMMUNICATION PROBLEMS

Canberra THE AUSTRALIAN in English 3 Jul 80 p 16

[Report by Elisabeth Johnston]

[Text] Telecom has found solar energy the most economical and reliable source of power to bring telecommunications to Australia's isolated outback.

As a result it has developed the world's first major trunk system to rely solely on solar power.

The microwave radio trunk system links Alice Springs into Telecom's broadband network at Tennant Creek.

Use of solar power also excludes taking into consideration costs of all-weather roads which have to be built if diesels are installed.

As fuel and maintenance costs of conventional power systems increase, there will be a growing demand for large solar energy power systems for use in telecommunications networks serving Australia's remote areas.

Each of the 13 repeater stations consists of three parts--a solar module, a 75m maximum height radio mast, and a building to house radio equipment.

A solar module consists of a standard shipping container housing a battery and three solar arrays mounted on it. Each solar array is made up of about 24 modules filled with silicon cells.

Each silicon cell converts the available light striking its surface into electricity which is stored in 24 batteries (with a 1500 ampere-hours total capacity) inside the shipping container.

The battery is needed to ensure a supply of power during the night or on cloudy days. A control panel in each repeater station monitors the local conditions and if the battery is very low it sets off an alarm.

In high sunlight areas like Central Australia the module produces 125 watts of continuous power (with up to 600 watts in ideal conditions) which is sufficient to power the microwave system.

Microwave radio transmits signals on very short wavelengths. These are focused into narrow beams by means of dish-like antennas mounted on tall steel masts extending up to 76m, the height of the mast depending on location and terrain.

Each mast in the Alice Springs-Tennant Creek microwave system carries three beams. One caters for 800 simultaneous telephone and telegraph circuits, the second serves as an emergency in case of breakdown and the third relays TV programs.

Along the Alice Springs-Tennant Creek route, microwave signals received at each repeater station are 'boosted' by equipment powered entirely by solar energy before being transmitted to the next station.

As in other microwave systems in Australia, each antenna must be in clear line-of-sight with the next to pick up and transmit signals.

Repeater stations along the 380 km route are thus set zig-zag at about 45 km apart so that signals cannot overshoot and cause interference to other stations further along the route.

The Alice Springs to Tennant Creek microwave radio system has improved telephone, television and telex services in the Northern Territory. At Tennant Creek, the system connects with the existing national broadband trunk network which runs clockwise 11,000 km, from Darwin to Port Hedland, with thousands of kilometres of offshoots serving the provincial areas.

Microwave radio and coaxial cable systems form the broadband network.

The network has been termed broadband because these signals operate on a wide or broad, radio bandwidth with capacity for high quality communication circuits, providing hundreds of circuits for simultaneous telephone calls as well as telegraph, data transmissions and TV program relays.

This new network has completely transformed Australia's trunk network into a highly efficient and technically advanced medium of communication with a capacity for expansion to meet future traffic growth.

# NEW DEFENCE COMMUNICATIONS NETWORK TO BE INSTALLED

Carriotta THE AUSTRALIAN in English 7 Jul 80, Supp., p 4

[From THE FINANCIAL AUSTRALIAN, published as a supplement to THE AUSTRALIAN]

[Text]

AN important new Australian defence communications network is to be implemented nationwide over the next decade.

Known as DISCON - Defence Integrated Secure Communications Network - it will provide communications essential for support of the command and control of the Defence Force.

It is a single fully digital integrated network concept which will gradually replace the single service networks that were established in the 1960s and early 1970s.

The system, to be developed in accordance with extensive studies, is to be fully integrated in that it will provide both the communications needs of all three services and would provide for all types of communications services. The system is also to provide total communications security (COMSEC) for the information transmitted through the network.

In common with other advanced military networks, DISCON is required to cater for the flow of commands from the higher defence authority down through the service's command structure, and also for the return flow of information which will facilitate the decision-making process at all levels.

DISCON will ultimately provide users with secure communications in the voice, telegraph, facsimile and data modes.

In the early 70s, defence strategic communications consisted of three separate networks, managed by the three services, and with appropriate interfaces between each network. This system provided a military secure telegraph message service to the Defence Force throughout Australia and overseas.

Significant pressures, including the increasing use of service manpower resources and the need for increased operational capability, emerged at the time and were demanding that these networks be modernised and upgraded if future requirements were to be met.

The level of expenditure needed to achieve these objectives led to a series of studies as to how best meet these requirements in a technically sound and economic manner.

The studies covered the overall strategic defence communications requirement and drew on wide experience and contributions from a number of other agencies.

The announcement of the DISCON project represented the culmination of about seven years of such studies and evaluation. The future strategic defence communications requirements and the

types of networks and systems which might appropriately meet defence needs up to the year 2000 were thoroughly investigated.

These were for the formation of the Defence Communications System (DCS) Division within the Department of Defence to manage the planning, procurement, installation, operation and maintenance of the fixed communications network; and secondly the system of strategic communications that might best meet Australia's future needs would be a single digital communications network to serve all users and to provide secure voice, facsimile, telegraph and data communications.

The DISCON project was initiated to meet the future defence strategic communications needs and to provide the single integrated digital communications network that would be necessary to meet requirements in the 1980s and 1990s. Furthermore, during this period it would be essential for DISCON to have access to the latest available digital communications technology.

Microprocessors when combined with other components, provide micro-computer capabilities. This factor is expected to provide as significant an impact in the 1980s as the transistor did 30 years ago. Certainly, the widespread application and integration of

the microprocessor indicates the end of the electro-mechanical age in communications.

New techniques will be introduced into Australia which will include low medium and high speed digital channels, various types of all-digital electronic switching systems under computer control, digital terminal devices and the operation of multiple services in a common network.



# FIVE-YEAR PLAN FOR TELECOMMUNICATIONS REPORTED

FROM THE BANGLADESH OBSERVER in English 17 May 80 pp 7, 9

[TONE]

## INTRODUCTION

TELECOMMUNICATIONS provide rapid communications for Trade and Commerce, Industry and Agriculture, not to speak of its utility in smooth running of the administrative machinery. It forms an important and vital infrastructure necessary for socio-economic development in any country. This is particularly so in difficult natural conditions of Bangladesh which hampers growth of surface communication systems like Railways and Road Communication. Vast tract of land in the country remains isolated during the rainy season, where telecommunications can provide reliable system of communication, for quick transmission of informations so vital for the growth of the economy.

## PRESENT CONDITION

Considering the density of telephones in relation to number of population as well penetration of service facilities particularly in the remote rural areas, the present position can hardly be considered adequate. Total installed capacity of telephones is about 1.2 lacs and the total number of working telephones are a little above 1.00 lac. Thus, the density of telephones per 100 people comes to 0.12, which is one of the lowest in the world. This is low in comparison to even the countries of the Region i.e. India 0.3, Pakistan 0.33, Thailand 0.8 and Malaysia 1.7. If the gap is to be narrowed down to bring it to the level of India a tripling of the present capacity will be needed.

As regards penetration of telephones the situation is even worse. Of the total installed

capacity, 93 per cent are in urban where roughly 9 per cent of the population live. Thus, the density of telephones in the rural areas is only 0.01 per hundred compared with 1.2 for urban areas.

In the long distance communication, 12 out of 20 District Headquarters are connected by high capacity Microwave links. Some Sub Divisional Headquarters are connected to the Main Microwave artery with LMF

links. However, the multiplexing and channelling capacity in these Microwave and LMF systems are not adequately provided. At present 16 out of 20 District Headquarters are connected by STD with Dacca. This system, however, is old and do not ensure high technical performance. Moreover, inter-district dialling as well as alternate routing under this system is not possible. Through Nation wide Trunk dialling all the automatic Exchanges are proposed to be linked, so that any subscriber of a particular automatic exchange will be able to dial any other subscriber. Thus, new system proposed to be introduced by the end of 1981 demands that the long distance network is adequately and systematically expanded so that no congestion at any stage occurs.

At present international trunk traffic are 100 per cent manual. International telex service is also likewise manual. This is proposed to be replaced by International Subscriber Dialling

(ISD) for trunk traffic and operator trunk dialling for telex traffic.

**FIVE YEARS PLAN TARGETS**  
During the 2nd Five Years

Plan period the local telephones are projected to increase by 1.00 lac lines. This will be an increase of 67 per cent over the present installed capacity. Of this about 95 per cent will be automatic and the rest manual. The total increase in rural areas will be about 20,000 lines and that in the urban areas by 60,000 lines. This will be an improvement over present distribution ratio of 91 per cent to 9 per cent to 85 per cent to 15 per cent of urban to rural telephones. At the end of the Plan period the density of telephones will increase from 0.12 to 0.22 per 100 people. All the District Sub Divisions and the Thana Headquarters will be covered by Automatic Exchanges and all the District and the Sub Divisional Headquarters will be included in the Nation wide Dialling Network. Recently after a lapse of about 10 years some coin box telephones have been installed in Dacca for the benefit of general public, who do not possess a telephone of their own. During the plan period, the number of such Coin Box telephones, including long distance Coin Box telephones, will be about 3,000. This is a new field where prospect for stupendous increase is possible in future. Another field which is receiving increased attention and support of the authorities. The hitherto neglected rural areas particularly in the field of telecommunication has been given top most priority in inclusion in the over all telecommunication network. All the Union Councils in the country and some important rural trade centres will be linked to the nearest Thana

It is hoped that the use of microwave technology in this field is likely to give a boost in the overall economic development of rural areas.

During the plan period, all the District and Sub-Divisional Exchanges will be integrated into Nationwide Dialling system so that every subscriber in the Network will be in a position to directly dial any other subscriber in the Network. International Trunk Dialling will also be supported partly by subscribers dialling through and partly by operator dialling system. For this purpose, an International Gateway Exchange will be established at Dacca to accommodate subscribers' complaints about over billing, all the automatic exchanges will be equipped with ANI (Automatic Number Identification) equipment so that all the subscribers' toll calls will be recorded with telephone number, time and duration of the call.

For expansion of International Circuits, the Satellite Ground Station at Belbunia will be modernised and expanded for working with Intelsat-V. Together with this a second standard B Earth Station will be established at Kaniakur near Dacca. This new Station in addition to working with all countries possessing such station, will also work as a standby to the main Satellite Ground Station at Belbunia.

In the long distance field, about 19 years old Dacca-Chittagong 4 tube Coaxial Cable Project will be completed. This will give a very stable and reliable telecommunication facility between the Capital City of Dacca and the Port City of Chittagong. This will also cater for increased channel requirement between these two cities due to increased number of telephones and introduction of Nationwide Dialling.

Dacca-Chittagong Microwave system is about 15 years old, and is not giving satisfactory service. This system will be replaced by a new Microwave system on an alternate route. At present Television transmission is carried out on the stand-by circuit of the Microwave links. Whenever fault develops in the main circuit, it is automatically switched over to the standby circuit. As a result interruptions of Television programmes are quite often. During the plan period, third beamers will be added to all the existing Microwave links to facilitate Television transmission.

Since all the land centres can now be connected by Microwave

transmission, the use of microwave technology will be expanded as a spur to the main Microwave Coaxial artery. This will ensure that the total long distance network is an integrated whole instead of patches.

In telephone switching, the world is at present going through a phenomenon of swift change. The electro-mechanical switching is being replaced by stored programme controlled analogue/digital switching. All the developed as well as developing countries are changing over to the digital or 100% time digital electronic exchange at Dacca. Through joint collaboration of foreign manufacturer of digital electronic exchanges, a telephone factory will be established, where initially the components will be assembled but gradually a large percentage of the components will be manufactured. This is absolutely necessary to develop technological know-how and reduce dependence on foreign suppliers as well as save valuable foreign exchange on imports.

Telegraphs facility is used by most common people in rural as well as urban areas. During the plan period in 200 Thana Headquarters Telecom-Buildings (providing facilities for departmental, Telegraph Office and Telephone Exchange) will be established and substantial improvement in Telegraph facilities will be ensured. All these Telegraph Offices will be linked with District Headquarters by Teleprinter Circuits.

For private teleprinter subscribers Telex Exchange exists in Dacca, Chittagong and Khulna with total equipped capacity of 400 lines. At the moment 282 telex subscribers are working in Bangladesh. A new Electronic Telex Exchange has been ordered for and is on the way. This will provide 250 additional telex subscribers at Dacca and also provide an International Route. In this plan period provision has been made for expansion of the Telex Exchange by 2,000 lines.

In the field of PBX/PABX, the increased demand due to the expansion of trade and commerce is proposed to be adequately met. During the plan period 20,000 lines of PBX/PABX will be installed to provide telephone facilities to other Govt. Semi Govt. agencies as well as private organisations.

Proper training of staff is essential for the maintenance & operation of the expanded telecommunication facilities. This is per-

ticularly important due to the rapid change in technology in Telecommunications.

During the pre-liberation period there was very little training facility in the then East Pakistan. Only a small Training Centre at Tejgaon used to cater for the training needs of low level officials. After liberation, the need to expand the training facilities was felt. Accordingly the training centre at Tejgaon was expanded with the help of UNDP. A second training centre was established at Khulna for mid level officials. Two other training centres for mid level officials at Bonga and Chittagong will be established during the 2nd Five Year Plan period. For training of officers with the help of UNDP a Telecommunication Staff College is being established at Joydebpur near Dacca.

In the field of Telecommunications the technology is changing very fast. As the equipments manufactured in different countries are designed to suit their conditions sometimes basic changes in the equipment are required to suit them to the conditions in Bangladesh. Sometimes very critical technical problem crop up in the field which need to be tested in laboratory to find out its cause. For this purpose during the plan period a Research and field trial unit is being established.

At present subscribers billing is done through computer of Janata Bank. During the plan period a computer centre is proposed to be established which will not only help preparation of bills, but through data collection and managerial aid functions will help in the efficient operation of the Board.

## CONCLUSION:

Considering the position of present telecommunication system, it must be emphasised that expansion of the telecommunication network must be accompanied with qualitative improvement in the existing system. This has been ensured by replacement of some age old equipments, which have outlived its utility. Modern and more sophisticated equipments will give better service facilities to the public and also generate more income, as in the new systems, maintenance and operation costs are likely to go down considerably. To be able to give services to the subscribers upto their expectation, much more qualitative changes are required, both in

the type of equipment in operation and quality of operating manpower. In both respects, we have still to go a long way to catch up with the world standard, but a beginning in this direction is definitely being made during the plan period. Much depends on the success or otherwise of this Plan. Bangladesh T & T Board is completely aware that it is duty bound to the millions to deliver the goods.

## INDIA

### INDIAN COMMUNICATIONS SATELLITE TO BE LAUNCHED THIS YEAR

BK201624 Hong Kong AFP in English 1601 GMT 20 Jul 80

[Text] New Delhi, July 20 (AFP)--India would launch her first experimental communication satellite, Ariane Passenger Payload Experiment (APPLE), towards the end of this year.

V. K. Rao, director of the Indian Space Research Organisation (ISRO), who disclosed this at Bangalore, in south India, said the ISRO scientists got "some more confidence" following the successful launching of SLV-3 (satellite launching vehicle) which put the 35-kg (77-pound) Rohini satellite into earth orbit Friday last [18 July].

Mr Rao told PTI News Agency in Bangalore today that the "apogee boost motor" which formed the fourth stage of SLV-3, was going into APPLE. The apogee boost motor among others was indigenously developed by ISRO scientists.

He said there was close interaction between technology used in SLV-3 and various satellites.

Mr Rao said the "APPLE" was now ready to be airlifted to Toulouse in France some time in the middle of next month.

At Toulouse, the place where airbuses are also built, the APPLE would undergo "acceptance" third developmental flight (LD-3), before finally journeying to Kourou in French Guiana for the liftoff atop the Ariane launch vehicle of the European Space Agency, he said.

Dr R. M. Vasagam, APPLE project director said the APPLE, which would operate in the geostationary orbit, would have the capability to transfer itself to geostationary orbit from a parking orbit where it would be placed by the Ariane launch vehicle.

The project is a major step towards using the latest technology of modular spacecrafts structure with three-axis body stabilisation.

## BRIEFS

**NORTHEASTERN RADIO LINKS**--High frequency radio links for rural stations are proposed to be established in the northeastern region for improvement of the communication system. The general manager of northeast circle, telecommunications, said that exchanges in Dibrugarh, Silchar, Tinsukia, Jorhat, Agartala and Imphal would be converted into automatic ones under the plan. He said electronic concentrators will be installed in Agartala and Imphal on an experimental basis to provide communication links to the public call offices within a radius of 50 kilometers. [Delhi Domestic Service in English 1530 GMT 22 Jul 80 BK]

**NORTHEAST BROADCASTING POTENTIAL**--The broadcasting potential of All India Radio's [AIR] stations in the northeastern region is being strengthened. This was stated by Minister of State for Information and Broadcasting Mrs Ramdulari Sinha in the Rajya Sabha today. She said as part of the scheme the transmitter at Shillong is in the process of being upgraded from 1 kilowatt to 100 kilowatts to make the local broadcasts audible in a wider region. There is also a scheme to upgrade the transmitter of AIR's Dibrugarh in Assam from 100 kilowatts to 300 kilowatts during the sixth plan. The scheme to set up a radio station at Itanagar, the capital of Arunachal Pradesh, with a 100 kilowatt transmitter has been approved and a suitable site has been located. The setting up of two new stations, one at (Tuhra) in Meghalaya and the other in the Sikkim capital, Gangtok, has also been approved. [Excerpt] [BK280922 Delhi Domestic Service in English 0830 GMT 28 Jul 80]

CSO: 5500

JAPAN

BRIEFS

NEW RADIO RECEIVER--Osaka June 7 KYODO--Matsushita Electric Industrial Co. said Saturday it would market an ultra high-grade radio receiver in Japan, the United States and in Europe from August 10. The yen one million radio set, with two microcomputers and 41 integrated circuits built in, is designed to receive broadcasts from all parts of the world on all frequencies ranging from long wave to FM. Matsushita plans to produce 50 units a month. [Text] [OWO70157 Tokyo KYODO in English 0148 GMT 7 Jun 80]

CSO: 5500

PAKISTAN

BRIEFS

INFORMATION MINISTRY--The president has assigned the portfolio of culture, sports and tourism with immediate effect to Maj Gen (ret) Shahid Hamid in place of the portfolio of information and broadcasting. The information and broadcasting portfolio will remain with the president, chief martial law administrator, till further order. As a result of this change, the minister for education, culture and sports and tourism has been redesignated as the minister for education. [Text] [BK031029 Karachi Domestic Service in English 1005 GMT 3 Jul 80]

CSO: 5500

## INTERNATIONAL AFFAIRS

### BRIEFS

GDR-POLAND RADIO AGREEMENT--A working protocol in the area of broadcasting was signed on Wednesday [2 July 1980] in Berlin for the years 1980-81 by the GDR Radio and Polskie Radio I Telewizja. In joint actions, both sides will popularize the Warsaw Pact's peace initiative, the implementation of the decisions of the Eighth PZPR Congress, the forthcoming 10th SED Congress and the 30th anniversary of the Treaty of Zgorzelec. [Text] [AU071351 East Berlin NEUES DEUTSCHLAND in German 3 Jul 80 p 2 AU]

CSO: 5500



## ROMANIA

### DECREE ON EXPORT OF TELEPHONE INSTALLATIONS

Bucharest BULETINUL OFICIAL in Romanian Part I No 44, 6 Jun 80 pp 1-2

Decree No 176 of the State Council on Some Measures To Improve Export of Telephone Exchanges as Well as Installations and "Service" for Automation and Telecommunications Installations

Text The State Council of the Socialist Republic of Romania hereby decrees:

Article 1. The Bucharest Scientific Research and Technological Engineering Institute for Automation, Computing Equipment and Telecommunications, through the Bucharest Scientific Research and Technological Engineering Center for Telecommunications Equipment under the guidance and control of the Department of the Electronics and Electrotechnical Industry under the Ministry of the Machine Building Industry, takes over the function of "general designer" for complete exports of automated and manual telephone exchanges from the Bucharest Institute for Technological Research and Design for Telecommunications under the Ministry of Transportation and Telecommunications, together with the attached specialized personnel.

Article 2. The name of the Bucharest Enterprise for Automation Assemblies and Installations under the Bucharest Industrial Central for Telecommunications and Automation Equipment is hereby changed to the Enterprise for Installation and "Service" for Automation and Telecommunications (IMSAT), with headquarters in Bucharest municipality, and it takes over the activity of installing exported telephone exchanges abroad from the Bucharest Teleconstructions Enterprise under the guidance and control of the Ministry of Transportation and Telecommunications, together with the attached specialized personnel.

The functions of Bucharest IMSAT are installation and repair of automation components, equipment and installations in Romania and abroad; technical aid in Romania and abroad in installing, activating, operating, maintaining and repairing automation installations including imported ones; installation and repair of exported telephone equipment and exchanges; technical aid for installing, activating, operating, maintaining and repairing exported telephone equipment and exchanges; and production of particular spare parts.

The name of the enterprise specified in Paragraph 33 of Annex No 3 to Decree of the State Council No 295 of 1979 on Some Measures to Improve the Organization of the Ministry of the Machine Building Industry is hereby changed according to the provisions of Paragraph 1.

Article 3. The functions of the Bucharest Industrial Central for Telecommunications and Automation Equipment are supplemented by "design of telephone exchanges and equipment for export, installation of exported telecommunications equipment and telephone exchanges, and technical aid in installation and activation as well as 'service' for automation and telecommunications components, equipment and installations."

For installation operations performed abroad, the central will function as a general foreign contractor for Bucharest IMSAT.

Article 4. Bucharest IMSAT, as a unit specializing in the categories of equipment and installations specified in Article 2, will perform in centralized fashion the duties of the units of the Ministry of the Machine Building Industry according to the provisions of Decree No 398 of 1973 on Activities of Delivery and Specialized Technical Aid in Installing and Activating Equipment and Complete Installations, on the basis of contracts concluded with the producing industrial units and also with the beneficiary units or those for installing such equipment and installations.

Beginning 1 January 1981, Bucharest IMSAT will be the main beneficiary of spare parts, manufactured in Romania or imported, that pertain to its automation installations. It will handle them in centralized fashion so as to best provide for the requirements of the maintenance and repair operations that it performs or for which it lends technical aid in their performance by the beneficiary units.

Article 5. Operations for installing automation and telecommunications installations performed by Bucharest IMSAT and paid for by beneficiaries out of investment funds are included in the activity of "construction-installation on contract," while operations for management, technical aid and "service" in installing, activating, operating, maintaining and repairing automation and telecommunications installations, regardless of the beneficiary's source of financing, as well as operations for manufacturing and reconditioning parts and equipment are included in the activity of "services ('service')."

Article 6. The personnel transferring from the units of the Ministry of Transportation and Telecommunications to the units of the Ministry of the Machine Building Industry according to Articles 1 and 2 are determined by agreement. They are placed in the existing positions and considered transferred in the interests of the service.

Scientific research and technological engineering personnel with higher education who are transferred according to Article 1 retain their professional grade.

Article 7. Operations for design, installation and "service" of telephone exchanges contracted for export by the units of the Ministry of Transportation and Telecommunications will be performed by them until they are completed and turned over to the beneficiaries, according to the provisions of the concluded contracts.

Article 8. The annex to Decree No 398 of 1973 on Activities of Delivery and Specialized Technical Aid in Installing and Activating Equipment and Complete Installations is hereby supplemented according to the annex that forms an integral part of the present decree.

Article 9. According to the criteria specified in Annex No 2 to the Decree of the State Council No 277 of 1979, Bucharest INSAT is provided with a passenger air for transportation of persons.

Article 10. The provisions of the present decree are applied according to the plan approved by the Ministry of the Machine Building Industry for 1980.

Nicolae Ceausescu  
President of the Socialist Republic of Romania

Bucharest, 2 June 1980.  
No 176.

#### Annex

Supplement to Annex to Decree No 398 of 1973 on Activities of Delivery and Specialized Technical Aid in Installing and Activating Equipment and Complete Installations

#### APPENDICES

1. List of tests and tests performed on equipment in the process of installation and activation of equipment to ensure its proper operation in the field, including the installation of equipment.

1. Tests	2. Tests performed on equipment in the process of installation and activation of equipment to ensure its proper operation in the field, including the installation of equipment.
3. Tests performed on equipment in the process of installation and activation of equipment to ensure its proper operation in the field, including the installation of equipment.	4. Tests performed on equipment in the process of installation and activation of equipment to ensure its proper operation in the field, including the installation of equipment.
5. Tests performed on equipment in the process of installation and activation of equipment to ensure its proper operation in the field, including the installation of equipment.	6. Tests performed on equipment in the process of installation and activation of equipment to ensure its proper operation in the field, including the installation of equipment.

- |                            |   |
|----------------------------|---|
| 1. Tests                   | 6. Remarks                                  |
| 2. Serial number           | 7. Telephone exchanges                      |
| 3. Name of equipment group | 8. Complete tests according to components   |
| 4. At the plant            | 9. Operational tests of whole installations |
| 5. At the beneficiary's    |   |

116  
180: 5000

YUGOSLAVIA

BRIEFS

INFORMATION MEDIA POLICY--Ljubljana--Today's meeting of the press council of the Presidium of the Republican Conference of the SAMP of Slovenia, chaired by Mitja Ribicic, dealt with the tasks of the public information media. Stane Dolanc, member of the Presidium of the LCY Central Committee, also participated in the meeting. Dolanc spoke about the functioning of our socialist self-managing system and about the tasks of the press, radio and television in solving the country's economic problems and in monitoring the system of democratic agreement-making which must be further consolidated. [Deal] [LJ06154] Belgrade TANJUG Domestic Service in Serbo-Croatian 1415 GMT 6 Jun 80]

CSCG: 15010

## INTER-AMERICAN AFFAIRS

### BRIEFS

CUBAN AID TO NICARAGUA--The Nicaraguan National Telecommunications Directorate has expressed its gratitude for the cooperation provided by the Cuban Communications Ministry's technicians who helped broadcast radio and television signals to Bluefields on the Atlantic side for the first time. In statements for the press on the occasion of a visit to Managua by a delegation headed by Cuban Communications Vice Minister Rene Hernandez, the Nicaraguan officials said that Cuba's cooperation will make it possible to install an automatic telephone dialing system for Jinotega and Matagalpa departments before 19 July, first anniversary of the victory of the revolution. They added that a relay television station has been installed in Larell and that work is currently underway to extend that service to other areas. [Text] [PA022000 Havana International Service in Spanish 1800 GMT 1 Jul 80]

CSO: 5500

ARGENTINA

BRIEFS

REGISTRATION OF RADIO AMATEURS--Buenos Aires, 14 Jul (TELAM)--The secretariat of communications has ordered a complete registration of all radio amateur licensees before 15 August. (PY151307 Buenos Aires TELAM in Spanish 1425 GMT 14 Jul 80 PY)

CSO: 1490

## BRAZIL

### GOVERNMENT CANCELS LICENSES OF TUPI TV STATIONS

RT:70128 Brasilia Domestic Service in Portuguese 2200 GMT 16 Jul 80

(Excerpt) In an official note released this afternoon, Mass Media Minister Said Farhat announced the solution given by the government to the problem affecting the television stations owned by the Tupi network. The minister reported that after closely following the problems and difficulties faced by the television enterprises of the Diarios Associados Company, the federal government resolved that:

1. It would consider as canceled the concessions granted to the following enterprises to provide VHF television services: Radiodifusora Sao Paulo, Inc., which operates TV Tupi Sao Paulo, Channel 4; Radio Tupi, Inc., which operates TV Tupi Rio de Janeiro, Channel 6; Radio Guarani, Inc., TV (Itacurubi) of Belo Horizonte, Channel 4; Radio Clube of Pernambuco, Inc., of Recife, Channel 6; Radio Marajoara, Inc., of Belem, Channel 2; Ceara Radio Clube, Inc., of Fortaleza, Channel 2; Radiotelevisao Piratini, Inc., of Porto Alegre, Channel 5.
2. The Communications Ministry will take the necessary steps to implement this decision by putting the above stations off the air.
3. The concessions granted to Correio Braziliense TV Brasilia Channel 6 and Television (Itapuan Inc.) Channel 5 of Salvador will remain in force until their licenses expire.
4. Legal measures to collect the federal government's credits, especially those related to fiscal, social security, and labor sectors, will continue to be implemented. The federal government will immediately take action to solicit bids for the concessions of the television stations whose concessions are hereby canceled. In awarding the new concessions, the federal government will recommend that the new concessionaires rehire as many as possible of the present employees of the stations affected by this measure.

## ISLE OF YOUTH COMMUNICATIONS PROGRESS NOTED

Havana GRANMA in Spanish 2 Jul 80 p 3

[Text] People who want to talk about current economic and social development levels achieved in recent years by the Isle of Youth would also have to do that by including its modern means of communications.

## Telephone Service

Right now, the development achieved in the telephone branch enables the Isle of Youth to communicate automatically from any of its towns with the city of Havana by dialing 07.

Likewise, each of these towns can communicate among each other through this system which makes for efficient and flexible service.

Among the more than 50 basic secondary farm schools, throughout its territory, 42 at this time have automatic telephone service which meant a considerable effort on the part of the workers of MINCOM [Ministry of Communications] and a heavy investment in terms of financial and material resources by the revolution.

To provide these facilities for these educational centers, it was necessary to build the facilities required in the towns of Nueva Gerona, La Fe, La Demajagua, La Victoria, and it was also necessary to install an urban telephone exchange in the rural region; pertinent measures are now being taken to extend this service to the other ESBECS [basic secondary farm schools].

To enable this branch to attain the above-mentioned achievements and to enable the inhabitants of the Isle of Youth to benefit from the highest telephone density in the country, after the capital of the republic--the island at this time has 4.5 telephones for every 100 inhabitants whereas the average for the rest of national territory, excluding the city of Havana, is 1.6 for every 100 inhabitants--it was necessary to install four ATZ-64 and 65 exchanges from the GDR and to build cable telephone networks with a length of 432 kilometers plus their corresponding civilian engineering and technical installations, among other investments.



Right now, this township has 120 telephone channels for communication with the capital of the republic, as against one channel back in 1959. The operator positions, for handling incoming and outgoing calls, were increased to 17, as against one such position in service back in 1959.

More than 30 organizations based on the Isle of Youth get the benefit of the installation of private telephone switchboards and a similar number is using the telex system to facilitate economic transactions, something which was made possible thanks to the creation of a TGX telex exchange in 1974.

### Mail and Telegraph

Before the triumph of the revolution, there was only one mail and telegraph unit in Nueva Gerona and one post office administration in the town of La Fe.

Right now, there are six mail and telegraph units in the biggest towns and there are 56 mailboxes which will soon be increased; three of them, belonging to the mail units, are tied in with the automatic TGX network and the others are maintaining communications with Nueva Gerona by telephone. Right now, plans are being made for the construction of another mail unit in the town of Gerona.

The concern with improving this service and making it more efficient every day among other things is due to the need for servicing the thousands of Cuban and other nationality students who have scholarships in the ESBE, as well as workers coming from various parts of the country.

### Radio and Television

The power of the 11 and 10-kilovolt and radio and television transmitters set up on the Isle of Youth makes it possible for the local "Radio Caribe" broadcasting station to be heard perfectly clearly throughout the entire territory. It can also be heard clearly in the City of Havana, Pinar del Rio and Cienfuegos. On the other hand, broadcasts from other broadcasting stations can be heard in the 2,200 square-kilometer area of this township.

The development plan for this year calls for the installation of a 250-kilovolt transmitter for the programming of Radio Progreso.

Due to the installation of the modern Television Transmission Center, situated in Sierra Caballos, Nueva Gerona, which retransmits the signal from national television channels 6 and 2 and the construction of the nationwide microwave system, that township today has television.

#### Press Distribution and Circulation

GRANMA and JUVENTUD REBELDE are daily shipped to the Isle of Youth by plane, using one of the flights of Cubana de Aviacion.

In summarizing a recent inspection and trouble-shooting trip to the various branches of MINCOM in this township, in the course of which the achievements and shortcomings to be observed here were analyzed, Pedro Guelmes, minister of communications, expressed the determination of the ministry's leaders to turn the Isle of Youth into a model of smoothly operating communications services which should be copied by the other branches of the ministry throughout the country.

5058

CSO:5500

CUBA

BRIEFS

LAS TUNAS TELEPHONE, TELEX CENTERS--As part of the activities honoring the 26 July anniversary, an automatic telephone substation, which doubles the installed capacity, and a telex plant for servicing the various state agencies and enterprises in the province were inaugurated in the city of Las Tunas. PCC Central Committee members Pedro Guelmes and Luis Alfonso Zayas, minister of communications and first party secretary in Las Tunas Province, respectively, presided at the inaugural ceremony of those two modern centers whose equipment were manufactured in the GDR. [Text] [FL261243 Havana Domestic Service in Spanish 1100 GMT 26 Jul 80]

CSO: 5500

SWEDEN'S ERICSSON TO HELP BUILD NEW PHONE SYSTEM

Stockholm SVENSKA DAGBLADET in Swedish 1 Jul 80 p 16

[Text] LM Ericsson and ITT will jointly develop the future telephone network in Mexico. In the selection of systems now being finalized by the Mexican authorities for telecommunications both LM Ericsson's AXE-system and ITT's competing system for electronic telephone exchanges were chosen. It is not yet known how large LM Ericsson's share will be or when deliveries are to be started. But the amount concerned, over a period of some years, is a couple of billions, says Hakan Ledin, vice president.

LM Ericsson's Mexican subsidiary presently receives order to the tune of 300 million annually. During the last years the influx of orders has increased by 10 to 12 percent annually.

"The new AXE-system in Mexico will imply another couple of hundred millions annually for our subsidiary," says Hakan Ledin.

Three important tenders are approaching decisions within the next few months. These include Argentina, where LM Ericsson competes primarily with Japan's Nippon for the development of the telephone network, Iraq, where an expansion program leading to 300,000 telecommunication extensions has been presented and Malaysia, where the main competitor is ITT.

9608

CSO: 5500

## BRIEFS

BREAK IN SATELLITE COMMUNICATIONS--According to a PARS NEWS AGENCY report, an adviser to the Ministry of Post, Telegraph and Telephone said today: In order to carry out alterations and repairs on the second antenna of the Asadabad ground station, Iran's communication links with certain Asian countries will be cut at certain times. He added: The first series of these cuts began at 1930 today and will continue till 0730 tomorrow. The ministry adviser said: The alterations and repairs on the second antenna of the Asadabad ground station will be completed by 26 July. [Text] [LD171758 Tehran Domestic Service in Persian 1630 GMT 17 Jul 80]

CSO: 4906

## BRIEFS

NEW TELECOMMUNICATIONS CENTER--Baghdad, 25 Jun--Iraq signed a contract today with an international firm for the construction of a new telecommunications center in Baghdad's Al-Karkh District, at a cost of 7 million Iraqi dinars. The center, to be built within a period of 22 months, will insure telephone and telegraph services between Iraq and the rest of the world. This is the second project of its kind and is one of the important projects included within the national development plan. [Text] [Baghdad INA in Arabic 1430 GMT 25 Jun 80 JN]

CSO: 5500

ISRAEL

BRIEFS

NEW ISRAELI TELEPHONE COMPANY--The ministerial committee on economic affairs approved the setting up of the communications company on 9 June. It is estimated that in 6 months after the diverse economic and legal aspects are settled the Ministry of Communications will become the communications company. Mail services, however, will remain in government hands for the time being. [Jerusalem Domestic Service in Hebrew 1000 GMT 9 Jun 80 TA]

CSO: 5500

EFFECTS OF TECHNOLOGY TRANSFER ON ALGERIAN ENGINEERING

Algiers EL DJEICH in French Apr 80 pp 13-18

[Article by B. Dahmani and T. Bouanika]

[Text] Algerian engineering seems, at last, to be emerging on a scale which match the national industrial aspirations. Yet, as a fight against use of "foreign" assistance take place, difficulties are still present, some of which are not of a technical nature, reports our staff correspondents Dahmani and Bouanika.

Science, and particularly technology, are produced by developed societies. These are responses, up to a point, to needs perceived by these societies, within each of their own economic and social contexts. This explains the problems found in searching for adequate technologies for developing countries: technologies most frequently obtained--or ready to be obtained--from other countries.

Should such purchased technology be used, with due consideration of the specific problems in the receiving country, or should such a technological solution be simply rejected? But a choice does not really exist, if one considers the urgent need for technology in countries--like Algeria--where the wide gap, which was created by historical circumstances, has to be eliminated. The existing gap between developed and developing countries--which is constantly increasing--makes it impossible to turn away from technology; for many reasons, the major one being found in an opinion generally held today that technological advance has a determining influence on societal evolution. So that, in every country which aspires to economic development, there is a certitude at the root of any governmental policy that technological development is not only feasible, but essential and urgent.

It follows that through technology transfer, various countries have acquired the benefits of an evolutive development, that is a regular growth produced through technological innovation. Such transfer can follow a path where science and production are linked through research efforts accepted by the country: a "vertical transfer" which results in original technological



innovations. But a transfer can also result from an "horizontal" approach: a new technology, developed in a country, can migrate from there to other places. In today's world, where relations between countries are quite easy, this results in an unification of world technology. Which explains why, if a particular national economy is considered, development through transfer from the pool of international technology results in reducing in importance original technological innovations, i.e. those produced by research conducted within the country. Algerian economy, which is immersed in this system, is thus bound by these transfer modes and it has to follow their rules. The investments which have been approved, to create a leading and powerful Algerian industry, have imposed international technological transfers. Results have been effective, but controlling and handling such transfers has created problems within other economic sectors.

### Technology Particularities

By deciding to use international technological transfers, Algeria was expecting to make up for lost time and achieve economic independence by simultaneously developing every sector of the economy. Such a decision has not been implemented without some drawbacks, inherent to the nature of the imported technology: essentially, technology which was successful in the country of origin, has not been automatically successful in the receiving country, i.e. Algeria. Some models, copies from industrialized countries, have proven useless and of low economic value. A situation which can be explained by a lack of study of the technological objectives. Because the introduction or the use of foreign technologies should be based on a number of considerations related to the adequacy of the "technological solution." The primordial consideration should be the final beneficiaries of the technological advance. Developed countries have an essentially urban population; where Algeria and Third World countries have an essentially rural population. As the ultimate objective of a man-oriented science should be directed to benefit the majority of the population, in particular that element which is the most in need, it seems logical to rank out technologies according to population types which will be finally affected by them, and beneficial effects which they will obtain directly or indirectly. As a second consideration, a well-known fact is that Algeria disposes of an important pool of manpower, ready to be employed; if possible, close to home and without too much violence to its customary way of life. Therefore, capital intensive technologies with limited needs for manpower are not well suited. Yet, it is argued that economic growth created by such advanced technologies is in itself a sufficient justification, because it makes economic emergence possible. But it should be remembered that, throughout the world, millions are unemployed, rootless and powerless, who are excluded from this emergence, which they can only follow as spectators. From another aspect, introduction of a technology is a cultural phenomena which draws on the personal abilities of each individual. In the end, a technology level will be measured on the basis of the technical knowledge of those using it, even if this knowledge may have to be "implanted" through proper training programs. For that matter, certain countries, which failed to recognize that which may appear evident, have ended up tying themselves for many years to technical assistance, with all the inherent servitudes.

well established economic considerations have also to be taken into account. Searching for optimum use of natural and human resources may well lead to recommend home grown technology development, rather than importing a foreign technology which, in most cases, could well have been conceived in function of specific resources existing in the country of origin. In this regard, it has been constantly noted that use of certain local products together with certain mode of production can frequently require that a new technology be invented, rather than making a superficial adaptation of imported methods, i.e. obtained by licensing. The government economic policy thus controls the development of our scientific potential.

In Algeria, this economic policy is based on an intensive technological transfer, which includes numerous sectors of the economy, where new and modern processes making use of the most recent techniques are imposed by the advanced character of the applied technology. In such "processes," innovation will result from the more or less difficult integration attempts.

#### Integration Difficulties

On a backdrop of the nation's will to produce in Algeria, industry is the key to economic integration, as long as all industrial sectors are willing to join in mutual support. This strategy includes the totally "made in Algeria" product, as well as the product manufactured with help from foreign technicians, on imported machines and according to imported conceptions. This determination raises the questions which surround the development of the mechanical industries; which have been consolidated into three national societies: SONACOME [National Mechanical Engineering Company] for the mechanical installations, SONELEC [Algerian National Company for the Manufacture and Installation of Electrical and Electronic Equipment] for the electrical installations, and SN METAL [National Metal Construction Company] for metal structures, boilermaking and heavy installations.

The desired integration is enormously delayed by the limited participation of our national production in providing equipments for our industry, structural metal, boiler plates and heavy metal equipment for its infrastructure. Existing production capacities, in SN METAL, are largely underutilized by these fabrications. While a large fraction of the required metal structures and heavy equipments could in principle be fabricated locally, they are still imported. There are number of reasons to explain this underutilization. On one hand, SN METAL suffers from the same problems which trouble other national societies: long construction delays, very slow advance toward a sufficient market penetration, low productivity, etc. SN in addition has to face its own peculiar problem: custom built equipments, i.e. equipments which are not produced in series (of long or short duration), articles which are produced on the basis of special designs and specifications; such a production will become reality only when, and if, there is a local capacity to conceive and draw elements and equipments (in addition to fabrication machines), and even more importantly, a comprehensive capacity in the country to conceive sub-systems and systems which incorporate basic local designs and conceptions.

Such was one of the major concerns, in the first years of industrialization, when the National Steel Company (SNS) among other companies was systematically developing its own design capacity with the objective of promoting integration of the national capital goods production (which were in fact produced by SN METAL). Since 1969-1970, the need to build rapidly and efficiently has modified this early direction: the "turnkey contract" approach has been promoted, which transfer the responsibility of completing a project to a single supplier. Then, following some disappointments, the use of the "product-ready contract" approach has been tried, where the single supplier has to carry not only the responsibility of building a working installation, but also to show that the installation can really produce at design capacity, delivering products up to specifications. In broad terms, technology transfer has settled into this form where the supplier, more deeply involved, must provide all the required know-how needed, together with guarantees that it will be an effective transfer. The looked-for objective was prompt building and operation of a diversified production apparatus. This positive approach has, in turn, created some unexpected situations.

#### Wasted National Capacities

The first repercussions have been felt in the development of our national drafting, designing and project realization capacities, which have been assigned a very low priority: these subjects were not even mentioned in the second four-year plan. As will be shown below, in reviewing SN METAL, SONELEC and SNERI [National Company for Industrial Studies, Management Achievement, and Exploitation] operations, this policy decision resulted in freezing-out an infant national engineering devoted to industrialization infrastructure.

The use of contract formulas, which give full responsibility to system contractors, has provided foreign suppliers linked to these contractors retained a systematic advantage, in particular to supply the most basic capital equipment: machine-tools, custom-built equipments. One can wonder if this does not create a new type of dependency, illustrated by cases provided by SN METAL managers, where the full responsibility assigned to the system manager results in inhibiting our national capacities and in increasing the resort to foreign sources; even for goods which were produced in Algeria at one time, or for goods and services which could be obtained locally, simply because of facility and out of habits. There is a need for a careful review of the emerging risks (we will study the symptoms), as it is the Algerian industry (and economy) capability for self-generated growth which is challenged: not only an increased self-generated growth, but also the direct self-generated growth which, in term of national production of spare parts, shows little growth, and where the technical assistance contracts, or those for maintenance or administration, show a tendency to prolong the "turn-key" and "product-ready" contracts. All of which has direct implication for the Algerian industrialization approach, based on promoting "integrated products," also known as "independence products."

How can they be promoted, if powerful national capabilities for design and project realization are not simultaneously developed? In direct opposition to the policy of achieving a rapid integration, or even industrial independence, the reality of national capacities for design is ignored, relegated to a secondary role, when it is not actually sabotaged, as will be seen from the following examples provided by SN METAL, SONELGAZ [National Electricity and Gas Company] and SNERI. In the currently existing conditions, one is quite distant from the guideline which implies that national march toward development will be based on just and rational modes and conditions. Technology selection is not always done according to needs, and the tendency to use foreign suppliers is frequent. There is no coordination between national companies, and this worsens the sluggish activities in the national design and project realization sector. The fall-out of each enterprise decision to use technological transfer affects the enterprise itself as well as the design services (SN METAL, SNERI) whose incipient engineering capabilities are choked.

Role of Engineering in Technology Transfer Development of a technical infrastructure in a developing country is linked to the existence of local technical capacities and to specific foreign techniques, acquired to back-up a national effort in research and development, together with the growth of locally conceived techniques. When there are technical capacities at the national level, it is imperative to strengthen and promote them; so that purchasing foreign technology does not become a continuous activity. Because of the rush of our enterprises toward foreign sources of supply, Algerian design and research capacities have very frequently been ignored. In this search for the easy solution, SN METAL has been one of the victims from this damaging attitude and engineering developed in this company has long suffered from this situation. Engineering is a very recent activity, a science with its rules, its methods and functions. Which explains why it is difficult to define it precisely, with some controversy, as it covers numerous domains which includes exact sciences as well as social sciences.

Many attempts have been made to define it, especially by emphasizing its technical functions. Because of the growing importance of engineering and its admitted efficiency in the technical as well as in the economic aspects of capital investment projects, and because of its use of modern techniques of data handling, drafting and organization, all of which resulted in expanding its engineering functions, the following definition can be used: project engineering consists in exploiting and evaluating all the required data to realize a project, or optimize the required investment within the whole system where the project will be integrated. Therefore it can be characterized as an application of concepts to promote economic activity, with a strict desire for a clear definition of objective and efficacy. Tasks are managed according to a precise plan, detailed and logical, in the measure where each phase follows only when and if the preceding ones have been completed. This principle is an essential element of modern engineering.



## SN METAL Engineering

In the SN METAL company, engineering is directed more toward fabrication than design; this being essentially the domain of SNERI. This is not to deny a design capacity to the first one. But its engineering design functions are more limited than the ones within SNERI, which can provide studies and drawings for any client, while SN METAL limits itself to specific projects. And this alone is quite a task, when difficulties facing SN METAL are considered. While SN METAL charter includes "studying, designing and realizing projects," the company is affected by the economic conjuncture and by the after-effects from the wide technology transfers indulged in by the national enterprises. Through their choice of an intensified cooperation with foreign firms, these national enterprises have restricted SN METAL to a small scale activity, with a concurrent limitation of its design and creative capacities. Up to 1979, SN METAL had not received a single order from a national enterprise; a surprising and negative situation, when compared to the political decision of creating an economy based on an integrated industry, with companies backing each other in their productions. As the SN METAL director has declared: "This uneasy situation has provoked a social problem in the company because work was not available. For years, the design department was left without a single project to execute; which caused the whole SN METAL team to become disheartened." Faced with this situation, management even resorted to price cutting below costs (a form of dumping) to obtain work and to justify the existence of this disadvantaged operation. How can this lack of confidence in SN METAL be explained? personal hostilities? a reputation as a "bunch of incompetents?" persuasive system integration based on foreign engineering? What ever the reasons, these years of inactivity have affected the company; which had created the engineering group in 1971 only to escape total dependence on foreign design sources. It became necessary in 1971, to regroup the design functions which existed (potentially) in SN METAL and which were moving toward oblivion. With this done, it remained to organize the work assignments. The relatively difficult start can be explained by the run of ill-luck that the company has experienced, and the high turnover among the specialists. It seems also that a lack of marketing savvy within SN METAL did result in the dissatisfaction shown by other companies. SN METAL engineering director, as an example says that "foreign firms offers are made with a clear knowledge that by the end of the contract, prices will have increased by 50%, which is not the policy followed by us, when we estimate correctly the project costs and when we deliver within the agreed limits." It is true that foreign contract specialists have it easy with their Algerian counterparts, who are not well informed, are over confident, and who are frequently attracted by easy contracts where every element is provided by a single supplier.

This means that the foreign system manager will design facilities based on his own country standards and technical resources, as he generally either totally ignore Algerian resources or hold them in low esteem; which results in total failure. During negotiation, the Algerian side may require a

specific work to be done, for instance, in turn, the supplier may request that 100,000 cubic meters of water be made available, again in the same example. But the Algerian negotiators, who are totally ignorant of the real need of this demand, may insist that it will have to be the responsibility of the foreign supplier, and that the contract should include this clause. The Algerian side, quite proud of having thus tied the supplier on this specific point of water supply, is far from knowing that the foreign firm will resolve the question by selecting the easiest solution, which is also the most costly! When this will be discovered, it will be too late to change it. There are numerous instances of such wastes in Algerian industrial projects, which can only be compared to the inherent wastes found in "turn-key" and "product ready" systems.

#### Direct and Income Leases

SN METAL engineering, toughened up by its past experiences, is still suffering from lack of confidence shown by national companies, whose tendency toward imported realizations is bleeding Algerian economy and preventing our national design capacities from realizing substantial gains. "How can we improve ourselves, if we do not have a chance to be tested, even if it means, at least once, making mistakes?" asks SN METAL engineering director. SN METAL, which has already mastered structural welding, boiler making and metal framework technology can also do drafting and designing work if an opportunity is provided. The same engineering director adds: "Our engineers and workers have had the opportunity to manufacture over a long period of time, acquiring in the process some experiences and definite knowledge of fabricating techniques," so that it would be easy for them to work on large projects, if confidence could be created. Thus SN METAL could benefit from the experience acquired by our workers while employed by SERPIC, NERAFOR, etc. [French firms] in realizing a full project. The director goes on by explaining that: "SN METAL engineering also includes industrial engineering, which can show through charts and process flow diagrams how the plant will be organized. This is followed by the project engineering which make use of existing material."

Since 1979, hard times experienced by SN METAL are now past history: when orders for a total of 250 million dinars were received. The directives from the Central Committee have had an effect, it seems, and a greater awareness among managers of foreign firms "false pretences" has turned in favor of SN METAL. SN METAL engineering advances can be illustrated by the construction of an installation to treat El-Hadjar ore for SNS [National Steel Company] and by its participation to Annaba II installations; thus the group shows its competitiveness to supplant foreign firms in its own field of specialization.

As mentioned by the engineering director, the risks, for our national economy, from too close cooperation are illustrated by SN METAL Tisset experience. This enterprise had obtained from an Italian contractor plans of an administrative building. It is unable to realize it because special

concrete forms are required, which would have to be imported from Italy. This case, which does not have to be commented, has incited SN METAL manager to renounce the services of foreign technical advisers (who were in their majority incompetent). A decision which has not made everybody happy, but there are too many interested parties, and one can wonder if this is not an explanation for the lack of orders (since 1975) received by SN METAL. Are these retaliatory measures? But really, who needs foreign advisers in Algeria? There is a fight for a real national engineering capacity...which is still not over and victorious!

### Engineering and SONELGAZ

SONELGAZ [National Electricity and Gas Company] is the oldest national enterprise, besides SN METAL, to have a large engineering group; and there are close ties between the two. They have been working together since 1968 on framework for Annaba and erection of Skikda. Aware of national engineering function, the managers of SONELGAZ have always disposed of the resources of an equipment department. In 1962, there were projects in Oran (Raven Blanc) and at Tizi-Ouzou. Between 1964 and 1968, it was a vacuum, a void, while the equipment team still existed. After 1968, a group of 10 engineers was occupied in a form of engineering more closely related to production than design. At SONELGAZ engineering is conceived as an integration of national activities based on the concept that production needs engineering. Which also explain why SONATRACH and SNS do not dispose of any engineering because of their relative short existence. On this basis, starting with the first plan (71-73), SONELGAZ has recruited engineers who now number 130; all on permanent status, as engineering requires an element of stability in its personnel. Thus, Mr Belhous, manager of this activity within SONELGAZ, declares: "Engineers must operate in a technical climate such that foreign technical assistance will have to depend on them. If the help from the foreign specialist is needed for 2 years, this will be the limit of the foreign assistance, so that our engineers carry over their responsibilities." In addition, Mr Belhous makes clear: "In 82-83, all our engineers will be in charge, particularly for steam generators." In the same manner, SONELGAZ is capable of realizing from 30 to 40% of high voltage stations, and 90% of power lines; a meaningful level of integration. Contrary to other national enterprises, quite eager to turn to foreign help, SONELGAZ uses national firms by priority. At Arzew, for instance, SONELGAZ imposes a quota of 9,000 man/months, which must be reserved for national enterprises on a total of 120,000 man/months. It has even accepted the risk of turning to SONATIBA [National Infrastructure and Building Construction Company] to build at Arzew; because, Mr Belhous says: "Technological transfer pre-supposes a risk, which should be more readily accepted between us Algerians."

As regard to foreign assistance, Mr Belhous is as deeply committed as his counterpart at SN METAL; it was never question at SONELGAZ to accept "turn-key contract," as was requested by certain directives. In a... to its complexity, the "turnkey" approach is difficult to manage and a... the

foreign supplier to profit from the inherent risks. SONEGAS operates by lot or subprojects, as it is easier to control performance through individual tasks. However, it is true that administrative red tape and obstacles can incite the use of "turnkey" approach, so much does it benefit from an easier financing. Failure to have an engineering national policy is also an obstacle to national development. "At one time, it was envisaged to build gas turbines, a complicated technology; while the easiest approach would be to start with steam engines. Who should decide? who will decide ultimately? Mr Belhou asks.

Algerian development rationale has always been based on an independence rationale. As defined by the revolution, the industrialization process is characterized by an effort from all national active forces toward building a self-centered, integrated economy, re-attached to its origins to break away from a too long historical dependence. The National Chart clearly indicates that industrial revolution means breaking away from the capitalist system. Therefore, it should not be necessary anymore to delay this rupture, under pretenses of cooperation with partners who have no interest in our political aims. In fact, Algerian industrialization started, in its first years, as a rupture from the expressed policies of our western partners: It was only after the managers of the National Steel Company had established contacts with Soviet sources that European industrialists, faced with a "fait accompli," were compelled to take part in building the Annaba steel plant.

The situation has changed; particularly since OECD countries have encountered hard times...building a plant in a developing country is not rejected anymore today, not in Algeria nor in any other location; specialists in engineering, systems, and equipment builders are "lining-up" in developing countries, particularly ready to offer their techniques, equipments, backed up by wide resources. This is likely to be part and parcel of a new strategy from the large supplying and engineering firms, which expect implicit fall-outs, in the form of technical help or management contracts; in fact this has been described as an opening toward "implicit forms" of contract dependence. Which means, in the end, that economic emergence cannot be conceived today as it was fifteen years ago.

To reach this goal, more subtle paths have to be followed now. Probably, these can be found by giving a greater priority to the production of "Independence products," which, as we know, cannot exist without support provided by research, drafting and designing capabilities, together with possible options in project realization, and finally an independent approach to the organization of the elements. All of which pre-suppose that in using foreign help (necessary) for techniques and models, the importance of collecting a native experience (obtained by initiative and trials) is neither forgotten, nor the need to promote all competences ignored.

It is certainly in this direction that effective economic emergence will be realized, where it is more important to master the techniques than to simply transfer them.



CAMEROON

BRIEFS

COMMUNICATIONS STATISTICS--There are now 19,320 telephone subscribers, 754 telex subscribers, 7,950 receiving radiodiffusion, 110 private radioelectricity, 11 radio amateurs, and 89 radio stations. /Excerpt/  
/Yaounde CAMEROON TRIBUNE in French 28 Jun 80 p 47

CSO: 5500

SATELLITE COMMUNICATIONS GROUND STATION BECOMES OPERATIONAL

Djibouti LA NATION in French 3 Jul 80 p 4

[26 June speech by President Hassan Gouled Aptidon at Ambouli]

[Excerpt] Continuing his travels, on the eve of the third anniversary, in order to preside over the official opening of projects completed during the year, on the afternoon of Thursday, 26 June, President Hassan Gouled Aptidon proceeded to the Ambouli ground station for the official startup of that major economic achievement, emphasizing, by virtue of his presence, the exceptional importance that must be attributed to the event.

The Ambouli station, which provides indispensable support for the development of our service-oriented economy, is a satellite communications ground station which makes it possible to establish direct connections with other countries using the same satellite -- that is, the satellite used by the Intersat Organization, situated over the Indian Ocean and serving some 100 countries.

Belonging to the Indian Ocean region of the Intersat system, Djibouti will therefore be able to be connected -- by means of direct circuits and depending on traffic needs -- to all European countries, most African nations and the countries of Asia.

In the initial phase, on the Djibouti-France connection, international telephone service will be automatic in both directions, which will considerably facilitate communications.

Completion of this facility represents an investment of 800 million Djibouti francs. Financing was provided jointly by a loan from the Djibouti Government out of aid supplied by Saudi Arabia, a bank credit and the funds of the Djibouti International Telecommunications Company (STID), which is the project promoter. This company (STID) is made up of the government of Djibouti (75 percent) and the France Cable and Radio Company (25 percent). It is under the minister of interior.

the following is the complete text of the address which the chief of state delivered on that occasion:

In many ways, this project represents a symbol of the action being waged by the government to develop our young republic. It is a symbol of international cooperation, first of all, characterizing our desire to have close ties with countries with different cultures and societies, and to utilize their aid for the completion of development projects. This station was able to be completed thanks to joint financing from two sources: Saudi Arabia for part of the financing and France for the rest of the financing and technical assistance.

It is a symbol of economic development because the construction of this ground station expresses our will to round out the assets we have in the sector of services. Actually, along with the improvement of our transportation infrastructures, it was necessary to provide a system of rapid and reliable telecommunications in order to have a system of quality international communications facilitating the establishment of industrial and commercial enterprises.

The project is a symbol of hope for our young people, offering them the possibility of gaining access to high-level technical jobs, for I hope that many Djiboutians will work hard in order to respond, as effectively as our foreign experts who participated in this undertaking, to the need for the high technical competency demanded by such modern equipment.

I will conclude by expressing the wish that this ground station will later become a symbol of the acquisition of technology by Djiboutians, but I would remind Djibouti young people that this acquisition can only be made after a long and arduous effort, for it is not enough to pass exams -- difficult enough in itself. One must also continue to work to prove one's competency.

In order to be opening this telecommunications ground station, I express deep thanks to all those who made the completion of this important project possible, and I sincerely hope that it will enable Djibouti young people to continue the acquisition of their knowledge in technical domains.

Long live the republic of Djibouti!

ELIABE  
SOU

## BRIEFS

NEW TELEPHONE LINES--The Federal Government over the weekend commissioned a new 13,500 line telephone network comprising five new, automatic exchanges in Lagos and Ondo States. An official statement from the Ministry of Communications said that in Lagos State the line commissioned at Apapa was a 10,000 line exchange and this will serve Ajegunle and Apapa areas of Lagos metropolis. It further said that on the same day, Saturday, July 5, 1980 in Ondo State four exchanges were commissioned in Akure, Ondo, Owo and Okitipupa to serve those towns. According to the statement the Akure, Ondo and Owo exchanges has capacities of 1,000 lines while that of Okitipupa has a capacity for 500 lines. The code numbers for Akure Ondo, Owo and Okitipupa exchanges are 034,034,051 and 059 respectively. The Apapa exchange was commissioned by the Minister of Communications Alhaji Akanbi Oniyangi, while those in Ondo State were commissioned by the Presidential Liaison Officer for the State, Mr S.A. Akintade. The commissioning of the new exchanges is part of the development programmes of the Ministry of Communications to improve telecommunications services throughout the country. /Text/ /Lagos BUSINESS TIMES in English 8 Jul 80 p 3/

CSO: 5500

## BRIEFS

UGANDAN POLITICAL BROADCAST GUIDELINES--The chairman of the Military Commission, Mr Paulo Muwanga, has directed that all statements and announcements originating from members of the various political parties and sent to the Ministry of Information and Broadcasting should be accepted for broadcast only if they have been endorsed by one of the three top officials at the party secretariat of the respective party. Names of the three secretariat officials, including sample signatures from each of the secretariats, should be sent to the Ministry of Information immediately. Mr Muwanga said this will help to eliminate the conflicting and unauthorized statements which have been witnessed of late. The chairman also directed the live coverage on Radio Uganda will be broadcast only to address by national heads of the national political parties on request in advance by the respective party secretariat. [Text] [Kampala Domestic Service in English 1400 GMT 16 Jun 80] The minister of information and broadcasting, Dr David Anyoti, has reiterated that all national political parties and their leaders will continue to be availed [as heard] the national radio and television, where they can propagate their party principles, objectives and programs and election manifestos for Ugandans. The minister warned however that national political leaders must refrain from using the radio and television to defame political opponents or incite people to hatred or violence against each other. [Text] [Kampala Domestic Service in English 0700 GMT 17 Jun 80]

CSO: 3500

## COMMUNICATIONS PROJECTS REVIEWED

Lusaka TIMES OF ZAMBIA in English 19 Jul 80 p 5

(Text)

**THE Posts and Telecommunications Corporation has embarked on a massive development programme covering the whole country.**

The programme, which will cost several thousands of Kwacha, was announced by PTC director-general Mr Philemon Ngoma when he addressed the Kitwe Press Club on Thursday night.

Mr Ngoma said the PTC had decided to take telephone services to all district centres, but he could not say how much money would be spent on the programme.

He said the programme involved the construction of a network of microwave carrier links to all provincial centres and installation of switching equipment.

Telephone exchanges at district and other centres of recognised business and industrial or agricul-

tural activity provide tangible testimony of PTC's commitment to national development.

### Microwave

He said the Lusaka-Chipata microwave link would be completed before the end of the year while the Mumbwa-Mongu link was expected to be finished next year.

He said the PTC and the news media were instruments of national development and played a great role in the education of the people.

The Press and the PTC had a common role to play in the improvement of understanding between peoples of different races and cultural backgrounds.

Mr Ngoma said there was no doubt that in Zambia

people enjoyed a great measure of freedom of the Press.

He believed that within the framework of this freedom it was possible for the Zambian Press to present a fair view to the public through more researched and balanced reporting than was sometimes the case.

He said: "It is important that the reporter spares no effort in searching his story so that it can stand the test of time."

The Press can play a vital role in stabilising situations by avoiding undue sensationalism.

"It is important for the Press to exercise responsibility in informing the public in building rather than a destructive role," Mr Ngoma said.—Times Reporter/Zana.

## GREENLAND RADIO CHIEF TELLS PLANS FOR TELEVISION START

ROSKILVIR MORGENBLADID in Icelandic 19 Jun 80 p 30

[Text] Greenland Radio chief Peter Frederik Rosing was visiting here last week because of preparations which are being made for the Greenland Radio to begin regular television broadcasting, which development is slated for 1982. The company's technical advisor, Thomas Mikkelsen, accompanied the radio chief, who worked for some years in the radio newroom and later in the programming division prior to being made radio chief just a few years ago.

Their main motivation for coming here was to hold conferences with representatives from Icelandic television regarding production and its technical aspects. The Greenland Radio chief said that it was a natural thing, because of the similar situation here in Iceland, for Greenlanders to refer to the Icelanders for advice. The two colleagues have particularly conferred with Chairman Petur Gudfinnsson and Chief Engineer Hordur Primannsson of Icelandic television. Rosing said that the conferences with the Icelanders have been very beneficial. It was actually the case that in those situations where the Greenland television project most needed help, the Icelandic example had been useful.

This was the gist of Peter Frederik Rosing's remarks in his interview with MORGENBLADID before he and Thomas Mikkelsen headed back home on the SAS flight to Naarsarsuaq. Radio chief Rosing said that according to the plans which have been made for television in Greenland, the idea was that the main broadcasting station would naturally be located in Nuuk-Godthaab. In the first stages, efforts will be made to send the broadcasts to the most populated settlements and farms, which are on Greenland's west coast.

The sheep breeding exchange system in Greenland along the west coast of the country encompasses a stretch of coast which reaches quite far north. The radio has access to the exchange's short wave system, and it is expected that when the television broadcasts begin they will also follow the short wave line.

In the first stages of production, they will already be able to reach approximately 60 percent of the population, which lives on and near the



west coast, all the way from Nanortalik in the south, below Cape Farewell-Hvarfi, to the west coast town of Umanak in the north, about 600 km north of Nuuk. This is the area which the short wave lines of Greenland television will serve--roughly 1000 km, as the crow flies, along the coast of this huge and sparsely populated country.

The television programming, according to radio chief Rosing, will come from Danish television, which will arrange for video tape recordings to be made. "We won't be able to manage direct broadcasts, at least not right away. We will have to rebroadcast from the station in Nuuk," he says.

"The Greenlanders are already well-acquainted with television, at least the people who live in the area we are planning to reach with our broadcasts in the first stages," said Rosing. "The television public at home," he says, "is in contact with a group of 10 or 15 people in Denmark who record Danish radio broadcasts on video tape for the Greenland TV users, which the Greenlanders later send back. It has been pointed out that this is against the law, that these single recordings of Danish radio programs for use in Greenland are illegal, and that the Greenland Radio can be held responsible. It is expected that this activity will stop when we start television broadcasting," says radio chief Rosing.

He said that the next stage of the operation would be to establish full television service further north along the west coast, all the way to Thule. "Of course attempts will be made to finance further progress for television, depending on how far our funds reach. We anticipate financial support for producing domestic television programming. I can't say at this point when we will achieve that, or when we'll be sending television signals across the Greenland Glacier, over to the towns on the east coast, to Angmagssalik and Scoresbysund. That will be expensive. Distances of hundreds of kilometers are involved. The problem is not in working out technical solutions, but in obtaining funds for these costly undertakings."

It came out in this conversation with radio chief Rosing that he was hoping that the first direct sound broadcast of a sports event from Iceland to Greenland would happen in connection with the Greenlandic national games with the Faeroese and Icelanders, in the beginning of July, in Saudarkrokur and Husavik. The newsroom of the Greenland Radio will send a reporter with the Greenland athletes to comment on the national games in that direct broadcast. On this occasion the Greenland Radio will be assisted by the Icelandic National Radio. Direct sound broadcasts from Iceland have been sent before, during the Icelandic millennial celebration in 1974, for example. Radio chief Rosing came to Iceland on that occasion as a reporter for Greenland Radio.

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CSO: 5500



REPORT CITES TELECOMMUNICATIONS PROGRESS FOR 1979

Paris LE MONDE in French 11 Jul 80 p 29

[Article by Jean Perrin]

[Excerpt] The 1979 activities report of the Directorate General of Telecommunications indicates that telecommunications products made advances compared to 1978 of nearly 24 percent, which resulted in an increase in self-financing from 54 to 63 percent.

Total product usage value amounted to nearly 36 billion francs (23 percent). Almost 90 percent of all product usage are represented by calls from subscriber telephones (22.8 billion), rental charges for subscribers (6.6 billion), installation and transfer taxes (1.7 million) and calls from public telephone booths (1.3 billion).

Some 1,144,000 new principal lines were installed (from November 1979 to April 1980) bringing to 14.8 million the number of subscriber lines. The 15 millionth subscriber will have his telephone installed at the end of July. In a related connection, the average wait for installation has decreased by 2 months, dropping from 7 to 5 months.

During the same period, 11,600 public telephone booths (publiphones) were installed. At present, 90,000 telephone booths are in service on public streets. At the end of the year, double phone booths are to be produced on the assembly line. Two prototypes are now being used in Paris. Finally, telephone booths operating by signature [olographiques] cards will be placed in service at the end of November in Paris and in the provinces. An experiment has been conducted since the month of May at the Montparnasse railway station in Paris.

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## BRIEFS

FIRST COMPUTERIZED PHONE EXCHANGE--All telephone subscribers in Ulriksdal having a number beginning with 85--together with the subscribers in Saverdalen outside Gothenburg--will be the first in the country to be connected to a modern, computerized phone exchange. During this summer, the work to connect the customers to the new exchange will be started and according to schedule everything is supposed to be completed by September. The new telephone system implies several changes for the customers. The subscriber will hear a dialing tone the same moment he lifts the receiver. Dialing will be faster. The person dialing will be allowed 15 seconds for each single digit. If more time elapses the exchange will disconnect and the dialing person will have to start again. The pitch of the dialing tone will be changed. In the new telephone system the ring signals will be emitted every 7 seconds instead of every 10 seconds, as presently. The unobtainable tone will also be altered. In the future it will sound as a triad. A telephone set with 13 push-buttons is a part of the new system. The telephone system will open the way for several new services. It will be possible to pre-program telephone numbers that are often used. If awakening by phone is wanted you could set the desired time yourself and the phone exchange will call you automatically. [Text] [Stockholm DAGENS NYHETER in Swedish 26 Jun 80 p 5] 9608

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